AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A method comprising:

transmitting a first current through a diode;

determining a first voltage across the diode, the first voltage associated with the first current;

transmitting a second current through the diode;

determining a second voltage across the diode, the second voltage associated with the second current;

transmitting a third current through the diode;

determining a third voltage across the diode, the third voltage associated with the third current; and

determining a temperature based at least in part on the first voltage, the second voltage and the third voltage,

wherein a magnitude of the third current is substantially equal to a geometric mean of a magnitude of the first current and a magnitude of the second current.

2. (original) A method according to Claim 1, wherein determining the temperature comprises:

determining the effective series resistance of a path associated with the diode based at least in part on the first voltage, the second voltage and the third voltage.

3. (currently amended) A method according to Claim ~~2~~1, wherein determining the temperature comprises determining the value of

$q(v_1 - v_2 - (i_1 - i_2) \times R_s)/(kn)\ln(i_1/i_2)$, wherein R_s ~~=~~ is substantially equal to $(v_1 + v_2 - 2 v_3)/(i_1 + i_2 - 2 i_3)$ and corresponds to the effective series resistance, and

wherein v_1 corresponds to the first voltage, v_2 corresponds to the second voltage, v_3 corresponds to the third voltage, i_1 corresponds to the first current, i_2 corresponds to the second current, i_3 corresponds to the third current, k corresponds to Boltzmann's Constant, n corresponds to an ideality factor associated with the diode, and q corresponds to the charge of a electron.

4. (cancelled)

5. (currently amended) A method comprising:

~~according to Claim 1, wherein determining the temperature comprises determining the value of~~

transmitting a first current through a diode;

determining a first voltage across the diode, the first voltage associated with the first current;

transmitting a second current through the diode;

determining a second voltage across the diode, the second voltage associated with the second current;

transmitting a third current through the diode;

determining a third voltage across the diode, the third voltage associated with the third current; and

determining a temperature based at least in part on $(a/(d-bc))(v_1 - v_2 - b(v_1 + v_2 - 2 v_3)$, wherein

$a = q/kn$, $b = (i_1 - i_2)/(i_1 + i_2 - 2 i_3)$, $c = \ln[(i_1 i_2)/i_3^2]$, and $d = \ln(i_1/i_2)$, and

wherein v_1 corresponds to the first voltage, v_2 corresponds to the second voltage, v_3 corresponds to the third voltage, i_1 corresponds to the first current, i_2 corresponds to the second

current, i_3 corresponds to the third current, k corresponds to Boltzmann's Constant, n corresponds to an ideality factor associated with the diode, and q corresponds to the charge of a electron.

6. (original) A method according to Claim 5, wherein a magnitude of the first current, a magnitude of the third current, and a magnitude of the second current substantially conform to a geometric progression.

7. (currently amended) An apparatus comprising:

a first diode;

a device coupled to the first diode to transmit a first current through the first diode, to determine a first voltage across the first diode, the first voltage associated with the first current, to transmit a second current through the first diode, to determine a second voltage across the first diode, the second voltage associated with the second current, to transmit a third current through the first diode, to determine a third voltage across the first diode, the third voltage associated with the third current, and to determine a temperature of the first diode based at least in part on the first voltage, the second voltage and the third voltage, wherein a magnitude of the third current is substantially equal to a geometric mean of a magnitude of the first current and a magnitude of the second current.

8. (original) An apparatus according to Claim 7, the device to determine the temperature by determining the effective series resistance of a path associated with the first diode based at least in part on the first voltage, the second voltage and the third voltage.

9. (currently amended) An apparatus according to Claim ~~8~~7, the device to determine the temperature by determining the value of

$q(v_1 - v_2 - (i_1 - i_2) \times R_s)/(kn)\ln(i_1/i_2)$, wherein $R_s = (v_1 + v_2 - 2\,v_3)/(i_1 + i_2 - 2\,i_3)$ and corresponds to the effective series resistance, and

wherein v_1 corresponds to the first voltage, v_2 corresponds to the second voltage, v_3 corresponds to the third voltage, i_1 corresponds to the first current, i_2 corresponds to the second current, i_3 corresponds to the third current, k corresponds to Boltzmann's Constant, n corresponds to an ideality factor associated with the diode, and q corresponds to the charge of a electron.

10. (cancelled)

11. (currently amended) An apparatus comprising:

~~according to Claim 7, the device to determine the temperature by determining the value of~~

a first diode;

a device coupled to the first diode to transmit a first current through the first diode, to determine a first voltage across the first diode, the first voltage associated with the first current, to transmit a second current through the first diode, to determine a second voltage across the first diode, the second voltage associated with the second current, to transmit a third current through the first diode, to determine a third voltage across the first diode, the third voltage associated with the third current, and to determine a temperature of the first diode based at least in part on $(a/(d-bc))(v_1 - v_2 - b(v_1 + v_2 - 2\ v_3)$, wherein

$a = q/kn$, $b = (i_1 - i_2)/(i_1 + i_2 - 2\ i_3)$, $c = \ln[(i_1 i_2)/i_3^2]$, and $d = \ln(i_1/i_2)$, and

wherein v_1 corresponds to the first voltage, v_2 corresponds to the second voltage, v_3 corresponds to the third voltage, i_1 corresponds to the first current, i_2 corresponds to the second current, i_3 corresponds to the third current, k corresponds to Boltzmann's Constant, n corresponds to an ideality factor associated with the diode, and q corresponds to the charge of a electron.

12. (original) An apparatus according to Claim 11, wherein a magnitude of the first current, a magnitude of the third current, and a magnitude of the second current substantially conform to a geometric progression.

13. (original) An apparatus according to Claim 7, further comprising:

a second diode,

wherein the device is coupled to the second diode to transmit a fourth current through the second diode, to determine a fourth voltage across the second diode, the fourth voltage associated with the fourth current, to transmit a fifth current through the second diode, to determine a fifth voltage across the second diode, the fifth voltage associated with the fifth current, to transmit a sixth current through the second diode, to determine a sixth voltage across the second diode, the sixth voltage associated with the sixth current, and to determine a temperature of the second diode based at least in part on the third voltage, the fourth voltage and the fifth voltage.

14. (original) An apparatus according to Claim 13, wherein the first diode and the second diode are integrated into a same substrate.

15. (original) An apparatus according to Claim 7, wherein the device comprises an analog-to-digital converter and a microcontroller.

16. (original) An apparatus according to Claim 15, wherein the first diode and the device are integrated into a same substrate.

17. (currently amended) A system comprising:

an integrated circuit comprising a first diode;

a device coupled to the first diode to transmit a first current through the first diode, to determine a first voltage across the first diode, the first voltage associated with the first current, to transmit a second current through the first diode, to determine a second voltage across the first diode, the second voltage associated with the second current, to transmit a third current through the first diode, to determine a third voltage across the first diode, the third voltage associated with the third current, and to determine a temperature of the first diode based at least in part on the first voltage, the second voltage and the third voltage, a magnitude of the third current being substantially equal to a geometric mean of a magnitude of the first current and a magnitude of the second current; and

a double data rate memory electrically coupled to the integrated circuit.

18. (original) A system according to Claim 17, the device to determine the temperature by determining the effective series resistance of a path associated with the first diode based at least in part on the first voltage, the second voltage and the third voltage.

19. (currently amended) A system according to Claim ~~18~~17, the device to determine the temperature by determining the value of

$q(v_1 - v_2 - (i_1 - i_2) \times R_s)/(kn)\ln(i_1/i_2)$, wherein $R_s = (v_1 + v_2 - 2\,v_3)/(i_1 + i_2 - 2\,i_3)$ and corresponds to the effective series resistance, and

wherein v_1 corresponds to the first voltage, v_2 corresponds to the second voltage, v_3 corresponds to the third voltage, i_1 corresponds to the first current, i_2 corresponds to the second current, i_3 corresponds to the third current, k corresponds to Boltzmann's Constant, n corresponds to an ideality factor associated with the diode, and q corresponds to the charge of a electron.

20. (cancelled)

21. (original) A system according to Claim 17, the device to determine the temperature by determining the value of

$(a/(d-bc))(v_1 - v_2 - b(v_1 + v_2 - 2\ v_3)$, wherein

$a = q/kn$, $b = (i_1 - i_2)/(i_1 + i_2 - 2\ i_3)$, $c = \ln[(i_1 i_2)/i_3^2]$, and $d = \ln(i_1/i_2)$, and

wherein v_1 corresponds to the first voltage, v_2 corresponds to the second voltage, v_3 corresponds to the third voltage, i_1 corresponds to the first current, i_2 corresponds to the second current, i_3 corresponds to the third current, k corresponds to Boltzmann's Constant, n corresponds to an ideality factor associated with the diode, and q corresponds to the charge of a electron.

22. (cancelled)

23. (original) A system according to Claim 17, wherein the integrated circuit comprises a microprocessor.